

NOAA 'BOUT WEATHER

Inside This Issue

New Storm Reports Page.....	1
Summer 2009 Climate Summary.....	2
40 th Anniversary of Camille Meeting...2-4	
Slow Tropics in 2009.....	4-5
Flood Forecasting & Data Collection....	5-7
High Wind Climatology in Winter.....	7-8
Winter Weather Safety.....	8-10
New Employees.....	10



by William Perry

Ron Holmes from the National Weather Service in State College, Pennsylvania has developed a new [Storm Reports Application](#) that utilizes Google Maps, (Figure 1). This new application is now available on our web site, and can be found on the left hand menu under Current Hazards, entitled [Local Storm Reports](#). This new product is Experimental and there is a [survey available](#) if you would like to comment on this new feature for our web page.

Some of the main features of this application are that during severe weather situations, the National Weather Service [warning polygons](#) will show up on the map, with the ability for users to overlay radar data, and zoom in to the storm. When the National Weather Service receives storm reports from various sources, a colored pin, based on a legend you will see below the map, will be

displayed at the exact location the report came from. When click on the pin, you will get the report information (Figure 2). Reports will include, hail, thunderstorm wind damage, tornadoes, and flooding.

This page updates every 5 minutes. Past weather events are also available for display. The links to these are further down the page. More information on this new application can be found here: <http://www.erh.noaa.gov/ctp/features/StormReports/>

If you have additional questions, feel free to [email us](#).

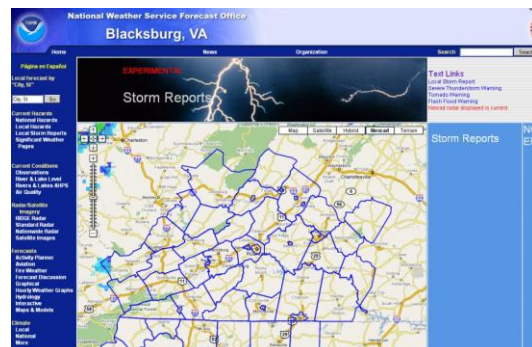


Figure 1. Click image to enlarge.

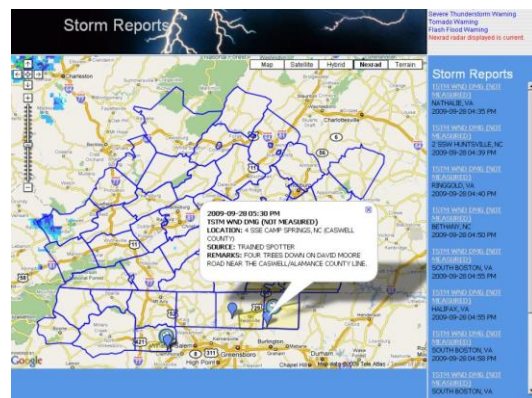


Figure 2. Click image to enlarge.

NOAA 'BOUT WEATHER

Summer 2009 Had Near Normal Temperatures and Precipitation

By Robert Stonefield

Overall, the temperatures this past summer (June through August) averaged near normal.

Although the three-month average temperature was near normal, this summer was still the coolest in the past 5 years. In addition, this summer may have seemed below normal because there were not very many hot days (>90F). In this aspect, the area was below normal as Danville had 30 days of 90F or warmer (normal is 42.6 days), Lynchburg had 12 days (normal is 20.6 days), and Roanoke had 8 days (normal is 24.1). Blacksburg and Bluefield had no 90F or warmer days and they typically average 5.7 and 1.6 days respectively.

Rainfall amounts for the summer of 2009 across the entire county warning area was around normal.

At Blacksburg's climatic sites, rainfall amounts for the summer were above normal with the exception of Lynchburg. Most climatic sites had a surplus of rain during the month of June. As the summer progressed, became more scattered in July and August and some areas were above normal while others were below normal. Bluefield's monthly rainfall

total for August of 5.88 inches was a new record. The old record was 5.77 inches set in 2006.

Despite the area not seeing any tropical systems this summer, on occasion, a tropical-like atmosphere was over the region and when storms developed, heavy rain fell. Looking at days where 1.00 inch of rain fell at a climatic site, Roanoke had 6 (normal is 2.6), Danville had 4 (normal is 3.2) and Lynchburg had 1 (normal is 3.2 days). Both Blacksburg and Bluefield had 3 days of an inch or more which is near average (2.6 and 2.3 days respectfully).

For graphics and tables showing the summer climate statistics [visit here](#).

Town Hall Meeting for 40th Anniversary of Hurricane Camille

By Phil Hysell

The National Weather Service (NWS) in Blacksburg conducted a Town Hall Meeting at the Leslie Gillis Theater in the Center for Leadership and Ethics in Lexington, VA on Tuesday August 18th. The purpose of this meeting was to promote safety and awareness of dangerous weather; discuss how the collection of weather data, warning decisions, and communications have changed since Hurricane Camille struck this region 40 years ago; and to take questions and address concerns from patrons and customers.

NOAA 'BOUT WEATHER

Approximately 58 people participated in this gala event. Each attendee was provided with a program and information packet which included frequently asked questions, a list of NWS web sites for weather information, and a participant's survey. Weather safety brochures were also available.

A 45-minute DVD, provided by the Virginia State Police, showing a series of videos and images of the destruction Camille brought 40 years ago was shown at the conclusion of the meeting.

The Blacksburg office has developed and maintained strong relationships with local media and emergency management, and their involvement was instrumental to the success and quality of the event. Robert Foresman, Emergency Management Coordinator for Rockbridge County, VA, was instrumental in securing the location for the Town Hall meeting and helped promote the event through the Rockbridge Alert system and the Rockbridge County twitter page.

Local television stations WDBJ and WSLS promoted and publicized the Town Hall Meeting through stories on their local evening news broadcasts. In addition to local television, the Blacksburg office advertised the meeting through local newspapers, local radio stations, several web sites (including their own), e-mails to spotters and emergency managers, and through dissemination of public information

statements that also aired on the NOAA Weather Radio "All-Hazards" system.

Just prior to the Town Hall Meeting, the National Weather Service conducted a separate workshop specifically geared for first responders and Emergency Management officials. During this meeting, NWS Blacksburg provided an overview of NWS digital and mobile services, reviewed weather safety information, and answered questions. Michael Cline, Virginia State Coordinator of Emergency Management spoke about the changes in Emergency Management since Camille struck in 1969.

The success of both events was due in large part to the active participation by much of the NWS Blacksburg staff. The following individuals were instrumental in the administration, promotion, and presentation of the Town Hall Meeting: Peter Corrigan, Service Hydrologist; Phil Hysell, WCM; Steve Keighton, SOO; Ken Kostura, Forecaster; Dave Wert, MIC, and Jim White OPL.

The Town Hall format is a great means for the NWS to promote its products and services as well as obtain direct feedback from its patrons and customers. This is the third Town Hall meeting that the Blacksburg office has conducted in as many years. To continue this dialog and to further enhance its presence in local communities, the Blacksburg office plans on conducting annual or semi-annual

NOAA 'BOUT WEATHER

Town Hall meetings across the rest of its forecast area in the next several years.



Meteorologist in Charge, Dave Wert, speaks at the August 18 NWS Blacksburg Town Hall meeting. Photo taken by Rockbridge County Emergency Services Coordinator Robert Foresman.

TROPICS SEE ONE OF THE SLOWEST SEASONS IN THE PAST 10 YEARS

By James Hudgins

Despite seeing an early season tropical depression form near the end of May, the Atlantic tropical hurricane season will be remembered as having the fewest number of storms since 1997. So far through mid October, there have been only 8 named storms (Fig 1), 2 of which were hurricanes, and 6 tropical storms. There were also a couple additional tropical depressions that never reached storm status. However both of the hurricanes were major (Category 3+) hurricanes, with Bill reaching category 4 status southwest of Bermuda in mid August, while Fred briefly touched category 3 levels just

west of the Cape Verde islands in early September before quickly weakening. Other tropical storms, Ana and Erika impacted the islands of the Lesser Antilles to some degree, while Claudette was the only U.S. landfall, crossing the western Florida panhandle in mid August.

Although the numbers were below the 50-year averages of 10 named storms, and 6 hurricanes per season, some records were established. These would include Tropical Storm Ana, which formed on August 12th making it the latest date since 1992 that the season's first named storm had formed so late. Also Hurricane Fred was the strongest hurricane so far south and east in known data records, as it reached major hurricane status about thirty-six hours after formation, becoming only the third known major hurricane east of longitude 35 degrees West. In addition despite the lack of many storms, 15 fatalities occurred, with many of these associated with drownings along the East Coast indirectly associated with large swells and rip currents with Bill.

The slow season can be attributed to several factors including fewer tropical waves, dry air over the central and eastern Atlantic, and nearly continuous southwesterly wind shear partly due to El Nino conditions over the eastern Pacific. With similar conditions expected to persist into the end of the Atlantic hurricane season which ends November 30th, a minimal number of additional tropical cyclones are expected from mid October through

NOAA 'BOUT WEATHER

the end of November.

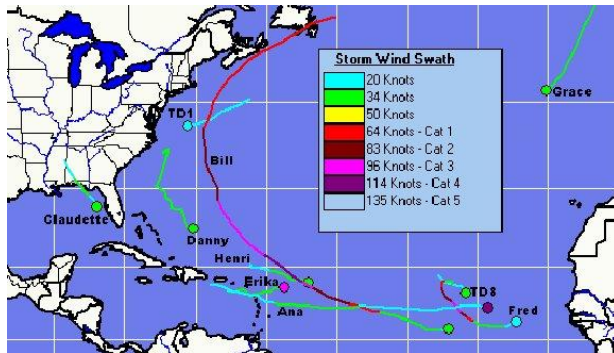


Fig 1. Tropical cyclone tracks for 2009 through mid October.

Flood Forecasting: A Data Collection Partnership

Peter Corrigan, Service Hydrologist

The National Weather Service in Blacksburg is responsible for issuing flood and flash flood forecasts for the numerous rivers and streams in our 40-county, 3-state area of responsibility. Gathering the data, which underpins this effort, is a multi-federal agency task, which derives additional support from state, county, local, and private entities interested in protecting life and property from the destructive effects of flooding.

In order to forecast flooding meteorologists and hydrologists at the NWS need to know how much rain has fallen over specific watersheds and how streams and rivers within the watershed are responding to the runoff from heavy rain or snowmelt. To accomplish this, the NWS in Blacksburg monitors literally hundreds of rain and stream gages many on a near real-time

basis. There are several important data networks that support this endeavor which will be briefly reviewed below.

The vast majority of river and stream gages in our area and across the nation are operated by the United States Geological Survey (USGS) which is part of the U.S. Department of the Interior. Each state in our forecast area (VA, WV, NC) has a USGS office which is responsible for installing new gages in their area and maintaining the existing networks. These networks form the backbone of the NWS flood warning program in addition to providing water information to a wide variety of users. Flood forecasting is truly a partnership between the NWS and USGS whereby the NWS provides river and flood forecasts to the public using stage and flow data from the USGS networks across the country. The following link provides an overview of the NWS-USGS partnership in flood forecasting: http://water.usgs.gov/wid/FS_209-95/mason-weiger.html. In addition it should be pointed that the USGS itself also has partnerships with numerous cities, towns and private companies (such as dam owners) in order to share the cost of operating river gages. These gages may be critical to allow forecasts to be made for that location. An excellent example is the City of Roanoke, VA which partners with the USGS on gages for the Roanoke River which can affect the city. To learn more about USGS water programs in general go their water web site: <http://water.usgs.gov/>.

NOAA 'BOUT WEATHER

The U.S. Army Corps of Engineers is another valuable federal partner in the flood forecasting efforts of the NWS. Three different Corps districts operate within the Blacksburg NWS area, including the Wilmington, NC, Norfolk, VA and Huntington, WV districts. Each of these Corps districts operate one or more important dams projects in our area for which substantial amounts of hydrometeorological data are required for the efficient and safe operation of the projects. The NWS uses this data as well to enhance its own flood forecasting efforts and coordinates with the Corps on the data networks involved. The Corps web site: <http://www.usace.army.mil/> provides links to the various Divisions and Districts of the Corps and to descriptions of the specific dam projects in this area.

Another important network is the Integrated Flood Observing and Warning System (IFLOWS) which is a network of rain and stream gages operated at the state level in all three of the states in our area. This network was originally developed by the NWS in the late 1970s in conjunction with several Appalachian states where a series of severe flash floods occurred. The network has expanded greatly over the years in the eastern U.S., mainly in mountain areas susceptible to flash flooding. All three states in our area are important partners in the IFLOWS network and provide critical support and maintenance functions. At this writing, the network is in the midst of a major overhaul in the data delivery architecture but the web site

<http://afws.net/> still contains the data and has more detailed information on how the network operates.

Other federal agencies also make important contributions to the data collection effort, including the United States Forest Service (USFS) with its Remote Automated Weather Stations (RAWS). These are located primarily in the mountains in order to monitor fire weather potential but are also used for precipitation analysis and hence can support flood forecasting. The Federal Aviation Agency (FAA) is another that provides data through its Automated Weather Observing System (AWOS). Although primarily used in support of aviation forecasting, some AWOS sites have rain gages.

In recent years many television stations including several in our area have started local weather observing networks at schools, businesses and parks. These may also provide rainfall data, which can be used in NWS hydrologic and other forecasts. Another relatively new source of precipitation data being used by the NWS is the Community Collaborative Rain, Hail and Snow network (CoCoRaHS). This is a voluntary network begun in Colorado after a major flood in 1997, which has been expanding across the U.S. since that time. All three of our states are part of the CoCoRaHS network which consists of public volunteers entering daily or very intense precipitation data onto a web site at <http://www.cocorahs.org/>. This network helps to provide the spatial density of data often needed to

NOAA 'BOUT WEATHER

provide accurate input to NWS hydrologic models.

Of course the NWS operates several important networks of its own including the Automated Surface Observing System (<http://www.nws.noaa.gov/asos/>) or ASOS network at larger airports and the Cooperative Network (<http://www.nws.noaa.gov/om/coop/>).

Winter High Wind Climatology for Blacksburg's County Warning Area

By Robert Stonefield

There is a significant weather event that happens every winter but is usually an afterthought, high winds. High winds are more common during the winter months, especially if you live in the higher elevations. These high winds are linked to cold frontal passages ([Fig. 1](#)) and developing coastal lows called Nor'easters ([Fig. 2](#)) off the Mid-Atlantic or New England coast. In the wake of a cold front, strong pressure rises and an increasing westerly low level jet will bring strong and gusty winds to the area. In the case of a Nor'easter, the pressure gradient between the deepening coastal low and high pressure to the west tightens and generates strong west to northwest winds across the area. Sustained winds of 20-40 mph with gusts up to 60 mph or more are common during these high wind events, especially across the higher terrain.

Accompanying these winds are very cold temperatures. Combining the winds and cold temperatures, wind chill values usually drop into the single digits, sometimes below zero, across the mountains.

During these significant events, the National Weather Service (NWS) will issue high wind watches, warnings or advisories. High wind watches are issued when the risk of a high wind event (≥ 40 mph), sustained for 1 hour or more; or ≥ 58 mph of any duration, is significant in the 12 to 48 hour time frame, but occurrence, location, severity, or timing is uncertain. High wind warnings are issued when winds of ≥ 40 mph, sustained for 1 hour or more; or ≥ 58 mph of any duration, is occurring, imminent, or has a significant probability of occurrence within 36 hours. Advisories are issued for wind events not quite as strong as the high wind thresholds, and have a significant probability of occurrence in the first 36 hours. Wind advisory criteria is 31-39 mph sustained for 1 hour or more; or 46-57 mph of any duration. These events are defined as non life-threatening by themselves, but they could become life-threatening if caution is not exercised.

High winds events (cold front and developing low pressure systems) have occurred every year since the beginning of this study (1993). The most high wind reports from a cold frontal passage in one year was 2003 with 91 reports. The most reports in a year from a developing coastal low was 2007 with 93

NOAA 'BOUT WEATHER

reports.

Generally, the stronger cold fronts do not cross the region until the winter months of December, January and February. From time to time, these strong systems can pass across the region as early as October and as late as May.

High winds have been reported at all hours of the day and night. Typically, the high wind reports overnight are along and west of the Blue Ridge of southwest Virginia and northwest North Carolina. The winds are generally the strongest in the morning just after sunrise and in the afternoon when mixing occurs.

During a cold front or developing coastal low high wind event, most high wind reports are along the Blue Ridge of southwest Virginia and northwest North Carolina. With a developing coastal low, a moderate showing of high wind reports are further east of the Blue Ridge and into the piedmont counties.

On February 10, 2008, an exceptionally strong wind event occurred from a passing of a cold front. Hurricane force wind gusts of 74 mph or more were reported across some mountain locations. All 40 Counties across Blacksburg's area of responsibility reported numerous power outages, large trees being uprooted, and property damage. Power lines that were downed from falling trees and limbs sparked several wildfires across the area. Three of the largest wildfires were Little Cuba (2700 acres) in Craig County, Black Horse (1500

acres) in Bedford County, and Green Ridge Mountain (about 4000 acres) in Roanoke County. The Black Horse fire in Bedford County (figure below) was started by an all-terrain vehicle operated on a restricted trail. These fires took state and local agencies and National Guard soldiers 3 days to get under control. Rain falling on the third day was a big help in controlling these fires.



Black Horse wildfire in Bedford County

For detailed graphs and charts on this study, [visit here](#).

Winter Weather Safety

By Phil Hysell

Each year, dozens of Americans die due to exposure to cold. Add to that number, vehicle accidents and fatalities, fires due to dangerous use of heaters and other winter weather fatalities and you have a significant threat. A major winter storm can last for several days and be accompanied by high winds, freezing rain or sleet, heavy snow and cold temperatures. People can become trapped at home or in a car, without

NOAA 'BOUT WEATHER

utilities or other assistance. The aftermath of a winter storm can have an impact on a community or region for days, weeks or even months.

The National Weather Service would like you to prepare you and your family for this potentially life-threatening hazard.

Be prepared to survive on your own for at least three days. Assemble a disaster supply kit. Be sure to include winter specific items including rock salt to melt ice on walkways, sand to improve traction, and snow shovels. Keep a stock of non-perishable food and extra drinking water.

Prepare for isolation in your home. Maintain several days supply of medicine, water, and food that needs no refrigeration. Have sufficient heating fuel, regular fuel sources may be cut off. Have emergency heating equipment and fuel (a gas fireplace or wood burning stove or fireplace) so you can keep at least one room in your home livable. Be sure the room is well ventilated. If a thermostat controls your furnace and your electricity is cut off by a storm, you will need emergency heat.

Keep fire extinguishers on hand and know how to use them.

Never burn charcoal indoors.

Have your vehicle(s) winterized before the winter storm season. Keeping your vehicle in good condition will decrease your chance of being stranded in cold weather.

Have a mechanic check your battery, antifreeze, wipers and windshield washer fluid, ignition system, thermostat, lights, flashing hazard lights, exhaust system, heater, brakes, defroster, and oil. Install good winter tires.

Put together a separate disaster supply kit for the trunk of each vehicle used by members of your household. This kit should include: Blankets; rain gear and extra sets of dry clothing; plastic bags for sanitation; several bottles of water; high energy 'munchies'; a small shovel; jumper cables; a first aid kit; a flash light with extra batteries; cell phone; and a brightly colored cloth to tie to the antenna.

In your home and car have a battery powered NOAA Weather Radio All-Hazards.

Know the difference between a Winter Storm Watch, Warning, and Advisory. A watch means winter storm conditions are possible within the next 36-48 hours. A warning means life-threatening severe winter conditions have begun or will begin within 24 hours. Act now! An advisory means winter weather conditions are expected to cause significant inconveniences and may be hazardous. If you are cautious, these situations should not be life threatening.

Don't forget about your pets! Make sure they have food, water and shelter.

NOAA 'BOUT WEATHER

For more information about winter weather preparedness visit:

<http://www.nws.noaa.gov/om/winter/index.shtml>

Two New Employees at NWS Blacksburg

Mr. Marc Chenard arrived at NWS Blacksburg, early June 2009 as a meteorologist intern. Marc just graduated from Penn State University with a B.S. degree in Meteorology. He had been serving as a Student Career Experience Program (SCEP) student with NWS State College since May 2008. Prior to being competitively selected for his SCEP assignment at State College, he served as a student volunteer during the summer of 2007 at NWS Taunton, MA.

Marc is a bright, energetic and mission-focused individual.

Mrs. Robyn Brown was selected as general forecaster at NWS Blacksburg, arriving in September 2009. She comes from her position as intern from NWS Charleston, SC. Robyn also served NWS Blacksburg as a volunteer in 2002 and 2003, and as our SCEP student in 2004 and 2005.

Robyn received a B.S. degree in Atmospheric Science from UNC-Asheville in May 2005.